18-0168
Cook

JUN 0 4 2010

2010 MAY 11 PM 1:58

ATC ASSOCIATES INC.

11117 Mockingbird Drive
Omaha, Nebraska 68137
www.atcassociates.com
Phone: 402.697.9747
Fax: 402.697.9170

April 9, 2010

Tennessee Dept. of Environment & Conservation
Div. of Air Pollution Control
9th Floor, L&C Annex
401 Church Street
Nashville, TN 37243-1531

RE: U.S. Cellular® - Emergency Generator Air Permit Applications

Dear Sir or Madam:

ATC Associates, Inc. was retained by U.S. Cellular® to complete air permit applications for their emergency generators within the State of Tennessee pursuant to APC Rule Ch. 1200. Upon review of U.S. Cellular's databases and through confirmation with their Network Field Engineers, ATC determined that U.S. Cellular currently has fifteen (15) generators within the State of Tennessee that are required to obtain air permits.

Attached are the Air Permit Application Forms (Form APC20, Form APC21&24 and APC22) for the fifteen (15) generators along with a check in the amount of $1,500.00 ($100.00/facility) for the permit fees. Also attached is a list of the fifteen (15) facilities with generators.

If you should have any questions, please do not hesitate to call me at (515) 981-3216.

Sincerely,
ATC ASSOCIATES INC.

Mike Freese

Mike Freese, REM
Sr. Project Manager

Attachments

cc: Doug Zabrin – U.S. Cellular®
Brad Summers – U.S. Cellular®
Dale Mattson – U.S. Cellular®
Jerry Williams – U.S. Cellular®
Mark Clark – U.S. Cellular®
Tony Chandler – U.S. Cellular®

Permit Required Facilities

Site #	Site Name	Site Address	Site City	Site State	Site Zip	Site County	Site Contact	Contact Phone	Gen. Mfr.	Gen. Model	Gen. Size (KW)	Generator Fuel Type
411316	411316 RATTLESNAKE DT	347 Tower Road	Gatlinburg	TN	37738	Sevier	Brad Summers	865.705.7600	Cummins	DGGD	35	DSL - Diesel
860327	860327 HARTSVILLE	136 Morrison Street	Hartsville	TN	37074	Trousdale	Dale Mattson	Not Listed	Kohler	50REOZJC	37	DSL - Diesel
860333	860333 RED BOILING SPRINGS	8101 Heady Ridge Rd.	Red Boiling Springs	TN	37150	Macon	Dale Mattson	Not Listed	Kohler	50REOZJC	37	DSL - Diesel
860338	860338 WESTSIDE	461 Green Grove Rd.	Lafayette	TN	37083	Macon	Dale Mattson	Not Listed	Kohler	50REOZJC	37	DSL - Diesel
860319	860319 PIONEER	8638 Sticking Creek Rd.	Pioneer	TN	37847	Campbell	Jerry Williams	865.679.4446	Kohler	50REOZJC	37	DSL - Diesel
860348	860348 PEAVINE	653 Eroh Rd.	Crossville	TN	38571	Cumberland	Mike Clark	931.979.0041	Kohler	50REOZJC	37	DSL - Diesel
860359	860359 ROBBINS	East Robbins Rd.	Robbins	TN	37852	Scott	Mike Clark	931.979.0041	Kohler	50REOZJC	37	DSL - Diesel
860362	860362 PINEY	252 Old Harriman Hwy.	Harriman	TN	37748	Roane	Mike Clark	931.979.0041	Kohler	50REOZJC	37	DSL - Diesel
860367	860367 CORDELL	8787 James Baker Highway	Huntsville	TN	37756	Scott	Mike Clark	931.979.0041	Kohler	50REOZJC	37	DSL - Diesel
860368	860368 MOFFIT	4496 Straight Fork Road	Pioneer	TN	37847	Scott	Mike Clark	931.979.0041	Kohler	30REOZJC	27	DSL - Diesel
860381	860381 STEPHENS	180 Tree Top Lane	Coalfield	TN	37719	Morgan	Mike Clark	931.979.0041	Kohler	50REOZJC	37	DSL - Diesel
411346	411346 DOUGLAS DAM	1443 Holbert Road	Dandridge	TN	37725	Sevier	Tony Chandler	865.679.0010	Kohler	50REOZJC	37	DSL - Diesel
860354	860354 CRAB ORCHARD	384 Godsey Road	Crab Orchard	TN	37723	Cumberland	Mike Clark	931.979.0041	Kohler	30REOZJC	27	DSL - Diesel
860358	860358 GLEN MARY	593 Huckelby Road	Robbins	TN	37852	Scott	Mike Clark	931.979.0041	Kohler	50REOZJC	37	DSL - Diesel
860345	860345 TANSI	490Vandiver Rd.	Crossville	TN	38571	Cumberland	Mike Clark	931.979.0041	Kohler	50REOZJC	37	DSL - Diesel

0860	05/06/2010	R 0000199217		1500009260
INVOICE NUMBER	DATE	AMOUNT	DISCOUNT	NET AMOUNT
050510 AIR PERMIT FEES	05/05/2010	$1,500.00		$1,500.00

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Tennessee RSA No. 3 LP
8410 W Bryn Mawr Ave
Suite 700
Chicago, IL 60631-3415

REMOVE DOCUMENT ALONG THE PERFORATION

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Suite 700
Chicago, IL 60631-3415

U.S.Cellular

1500009260
BANK OF AMERICA
2-3
710 IL

DATE
May 06, 2010

0860 0000199217

PAY ONLY $1,500.00

VOID IF NOT CASHED WITHIN 180 DAYS OF ISSUE

One thousand five hundred and 00/100 Dollars

PAY TO THE ORDER OF
State of Tennessee
Dept of Environment - Conservation
401 Church Street
NASHVILLE TN 37243

⑈1500009260⑈ ⑆071000039⑆ 580096343 0⑈

Remove this stub before cashing. Fold, crease, and tear along perforation.

1500009260

0860 0000199217

Tennessee RSA No. 3 LP
8410 W Bryn Mawr Ave
Suite 700
Chicago, IL 60631-3415

U.S.Cellular

$100.00 each of this fee applies to 15 different permits

State of Tennessee
Dept of Environment - Conservation
401 Church Street
NASHVILLE TN 37243

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PATRICE GOODWIN
773-399-8999
US CELLULAR-CORPORATE
8410 W BRYN MAWR AVENUE
CHICAGO IL 60631

2 LBS

1 OF 1

SHIP TO:
TENNESSEE DEPT OF ENVIROMENTAL
DIV OF AIR POLLUTION CONTROL
9TH FLOOR L&C ANNEX
401 CHURCH ST.
NASHVILLE TN 37219-2310

TN 371 9-02

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STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL

9th Floor, L & C Annex
401 Church Street
Nashville, TN 37243-1531
Telephone:(615) 532-0554
FAX: (615) 532-0614

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PERMIT APPLICATION

APC 20

PLEASE TYPE OR PRINT AND SUBMIT IN DUPLICATE FOR EACH EMISSION SOURCE. ATTACH APPROPRIATE SOURCE DESCRIPTION FORMS.

1. **ORGANIZATION'S LEGAL NAME**			/ / / FOR	APC COMPANY--POINT NO.
US Cellular				18-0108
2. **MAILING ADDRESS** (ST/RD/P.O. BOX)			/ / / APC	APC LOG/PERMIT NO.
8410 W. Bryn Mawr Avenue, Suite 900				6 3689
CITY	STATE	ZIP CODE		PHONE WITH AREA CODE
Chicago	Illinois	60631		773-399-6899
3. **PRINCIPAL TECHNICAL CONTACT**				PHONE WITH AREA CODE
John Glatz/US Cellular Mike Freese/ATC Associates				773-399-6899 515-981-3216
4. **SITE ADDRESS** (ST/RD/HWY)				COUNTY NAME
490 Vandiver Road (Site known as 860345 Tansi)				Cumberland
CITY OR DISTANCE TO NEAREST TOWN		ZIP CODE		PHONE WITH AREA CODE
Crossville		38571		931-979-0041 Mike Clark – Network Field Eng.
5. **EMISSION SOURCE NO.** (NUMBER WHICH UNIQUELY IDENTIFIES THIS SOURCE)		PERMIT RENEWAL YES ( ) NO (X)		
ES-1				

6. **BRIEF DESCRIPTION OF EMISSION SOURCE**

Backup Emergency Generator (Kohler Model 50REOZJC)

7. **TYPE OF PERMIT REQUESTED**

CONSTRUCTION (X)	STARTING DATE Installed 7/09	COMPLETION DATE	LAST PERMIT NUMBER	EMISSION SOURCE REFERENCE NUMBER
OPERATING (X)	DATE CONSTRUCTION STARTED Installed 7/09	DATE COMPLETED	LAST PERMIT NUMBER	EMISSION SOURCE REFERENCE NUMBER
LOCATION TRANSFER ( )	TRANSFER DATE		LAST PERMIT NUMBER	EMISSION SOURCE REFERENCE NUMBER
ADDRESS OF LAST LOCATION				

8. **DESCRIBE CHANGES THAT HAVE BEEN MADE TO THIS EQUIPMENT OR OPERATION SINCE THE LAST CONSTRUCTION OR OPERATING PERMIT APPLICATION.**

9. **SIGNATURE** (APPLICATION MUST BE SIGNED BEFORE IT WILL BE PROCESSED)		**DATE** 4/30/10
10. **SIGNER'S NAME** (TYPE OR PRINT)	**TITLE**	**PHONE WITH AREA CODE**
John Glatz	Director Real Estate Service	773-399-6899

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL

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Nashville, TN 37243-1531
Telephone:(615) 532-0554
FAX: (615) 532-0614

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PROCESS OR FUEL BURNING SOURCE DESCRIPTION

APC21(& 24)

PLEASE TYPE OR PRINT, SUBMIT IN DUPLICATE AND ATTACH TO THE PERMIT APPLICATION.

1. **ORGANIZATION NAME**		/ / / FOR	APC COMPANY-POINT NO.
US Cellular			
2. **EMISSION SOURCE NO.** (AS ON PERMIT APPLICATION)	SIC CODE	/ / / APC	APC PERMIT/LOG NO.
ES-1	4812		

3. **DESCRIPTION OF PROCESS OR FUEL BURNING UNIT**

Backup Emergency Generator (Kohler Model 50REOZJC)

4. **NORMAL OPERATION**: → Emergency generator is exercised on a periodic basis	HOURS/DAY	DAYS/WEEK	WEEKS/YEAR	DAYS/YEAR
5. **PERCENT ANNUAL THROUGHPUT:** →	DEC.-FEB.	MARCH-MAY	JUNE-AUG.	SEPT.-NOV.
	25%	25%	25%	25%

6. **TYPE OF PERMIT APPLICATION**	(CHECK BELOW ONE ONLY)
PROCESS SOURCE: APPLY FOR A SEPARATE PERMIT FOR EACH SOURCE. (CHECK AT RIGHT, AND COMPLETE LINES 7, 8, 13, AND 14).	( )
PROCESS SOURCE WITH IN-PROCESS FUEL: PRODUCTS OF COMBUSTION CONTACT MATERIALS HEATED. APPLY FOR A SEPARATE PERMIT FOR EACH SOURCE. (CHECK AT RIGHT, AND COMPLETE LINES 7, 8, AND 10 THROUGH 14)	( )
NON-PROCESS FUEL BURNING SOURCE: PRODUCTS OF COMBUSTION DO NOT CONTACT MATERIALS HEATED. COMPLETE THIS FORM FOR EACH BOILER OR FUEL BURNER AND COMPLETE AN EMISSION POINT DESCRIPTION FORM (APC 22) FOR EACH STACK. (CHECK AT RIGHT, AND COMPLETE LINES 9 TO 14)	(X)

7. **TYPE OF OPERATION:** CONTINUOUS ,	BATCH	NORMAL BATCH TIME	NORMAL BATCHES/DAY
( )	( )		

8. **PROCESS MATERIAL INPUTS AND IN-PROCESS SOLID FUELS**	DIAGRAM* REFERENCE	INPUT RATES (POUNDS/HOUR) DESIGN	ACTUAL	/ /	(FOR APC USE ONLY) SCC CODE
A.				/ /	
B.				/ /	
C.				/ /	
D.				/ /	
E.				/ /	
F.				/ /	
G.				/ /	
	TOTALS			/ /	

* A SIMPLE PROCESS FLOW DIAGRAM MUST BE ATTACHED.

(OVER)

APC 21 (& 24)

9. BOILER OR BURNER DATA: (COMPLETE LINES 9 TO 14 USING A SEPARATE FORM FOR EACH BOILER)

BOILER NUMBER	STACK NUMBER**	TYPE OF FIRING***	RATED BOILER HORSEPOWER	RATED INPUT CAPACITY (10^6 BTU/HR)	OTHER BOILER RATING (SPECIFY CAPACITY AND UNITS)
ES-1	EP-1				37 kilowatt

BOILER SERIAL NO.	DATE CONSTRUCTED	DATE OF LAST MODIFICATION (EXPLAIN IN COMMENTS BELOW).
2257327	July 2009	NA

** BOILERS WITH A COMMON STACK WILL HAVE THE SAME STACK NUMBER.

*** CYCLONE, SPREADER (WITH OR WITHOUT REINJECTION), PULVERIZED (WET OR DRY BOTTOM, WITH OR WITHOUT REINJECTION), OTHER STOKER (SPECIFY TYPE), HAND FIRED, AUTOMATIC, OR OTHER TYPE (DESCRIBE BELOW IN COMMENTS).

10. FUEL DATA: (COMPLETE FOR A PROCESS SOURCE WITH IN-PROCESS FUEL OR A NON-PROCESS FUEL BURNING SOURCE)

PRIMARY FUEL TYPE (SPECIFY): Diesel Fuel

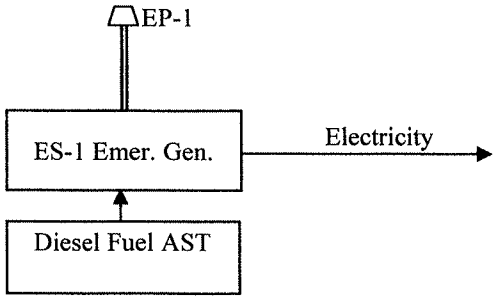
STANDBY FUEL TYPE(S) (SPECIFY)

FUELS USED	ANNUAL USAGE	HOURLY USAGE DESIGN	HOURLY USAGE AVERAGE	% SULFUR	% ASH	BTU VALUE OF FUEL		(FOR APC ONLY) SCC CODE
NATURAL GAS:	10^6 CUFT	CUFT	CUFT	/ / / / / / / /	/ / / / / /			
#2 FUEL OIL: Diesel Fuel	10^3 GAL <100 gal./year	GAL:4.3 gal./hr. @ full standby	GAL: 3.6 gal./hr. @ full prime	<0.5%	/ / / / /	140,000/gal.		20200102
#5 FUEL OIL:	10^3 GAL	GAL	GAL		/ / / / /			
#6 FUEL OIL:	10^3 GAL	GAL	GAL		/ / / / /			
COAL:	TONS	LBS	LBS					
WOOD:	TONS	LBS	LBS	/ / / / / / / /	/ / / / /			
LIQUID PROPANE:	10^3 GAL	GAL	GAL	/ / / / / / / /	/ / / / /			
OTHER (.SPECIFY TYPE & UNITS.):								

11. IF WOOD IS USED AS A FUEL, SPECIFY TYPES AND ESTIMATE PERCENT BY WEIGHT OF BARK

12. IF WOOD IS USED WITH OTHER FUELS, SPECIFY PERCENT BY WEIGHT OF WOOD CHARGED TO THE BURNER.

13. COMMENTS: Process Flow Diagram below.



14. SIGNATURE John Gast

DATE 4/30/2010

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL

9th Floor, L & C Annex
401 Church Street
Nashville, TN 37243-1531
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EMISSION POINT DESCRIPTION

APC 22

PLEASE TYPE OR PRINT AND SUBMIT IN DUPLICATE FOR EACH STACK OR EMISSION POINT.
ATTACH TO THE PERMIT APPLICATION.

1. ORGANIZATION NAME US Cellular				/ / / FOR	APC COMPANY POINT NO.
2. EMISSION SOURCE NO. (FROM APPLICATION) ES-1		FLOW DIAGRAM POINT NUMBER EP-1		/ / / APC	APC SEQUENCE NO.
3. LOCATION: →	LATITUDE 35.868854	LONGITUDE -85.101923	UTM VERTICAL		UTM HORIZONTAL
4. BRIEF EMISSION POINT DESCRIPTION (ATTACH A SKETCH IF APPROPRIATE): Exhaust for emergency generator					DISTANCE TO NEAREST PROPERTY LINE (FT) Remote cell location >50 ft.

COMPLETE LINES 5 AND 6 IF DIFFERENT FROM THAT ON THE PROCESS OR FUEL BURNING SOURCE DESCRIPTION (APC 21)

5. NORMAL OPERATION: →	HOURS/DAY Emergency generator is exercised on a periodic	DAYS/WEEK	WEEK/YEAR		DAYS/YEAR
6. PERCENT ANNUAL THROUGHPUT: →	DEC.-FEB. 25%	MARCH-MAY 25%	JUNE-AUG. 25%		SEPT.-NOV. 25%
7. STACK OR EMISSION POINT DATA: →	HEIGHT ABOVE GRADE (FT) ~5'	DIAMETER (FT) 0.2	TEMPERATURE (°F) 1066	% OF TIME OVER 125°F	DIRECTION OF EXIT (UP, DOWN OR HORIZONTAL) Vertical
DATA AT EXIT CONDITIONS: →	FLOW (ACTUAL $FT^3/MIN.$) 456	VELOCITY (FT/SEC)	MOISTURE ($GRAINS/FT^3$)		MOISTURE (PERCENT)
DATA AT STANDARD CONDITIONS: →	FLOW (DRY STD. FT^3/MIN) 423	VELOCITY (FT/SEC)	MOISTURE ($GRAINS/FT^3$)		MOISTURE (PERCENT)

8. AIR CONTAMINANTS	ACTUAL EMISSIONS						
	EMISSIONS (LBS/HR)		CONCENTRATION	AVG. (TONS/YR)	EMISSIONS* EST. METHOD	CONTROL DEVICES*	CONTROL EFFICIENCY%
	AVERAGE	MAXIMUM					
PARTICULATES	0.15	0.18	**	0.05	3		
SULFUR DIOXIDE	0.14	0.17	***	0.04	3		
CARBON MONOXIDE	0.47	0.56	PPM	0.14	3		
ORGANIC COMPOUNDS	0.18	0.21	PPM	0.05	3		
NITROGEN OXIDES	2.17	2.60	PPM	0.65	3		
FLUORIDES				<0.01			
OTHER(SPECIFY)	Above emissions based on full prime	Above emissions based on full standby		Emissions above based on 500hrs/yr and full standby.	Above based on SCC 20200102		

(OVER)

9. CHECK TYPES OF MONITORING AND RECORDING INSTRUMENTS THAT ARE ATTACHED:
OPACITY MONITOR ( ), SO2 MONITOR ( ), NOX MONITOR ( ), OTHER (SPECIFY IN COMMENTS) (X)

10. COMMENTS

Hour meter

11. SIGNATURE	**DATE**
[signature]	4/30/2010

* REFER TO THE BACK OF THE PERMIT APPLICATION FORM FOR ESTIMATION METHOD AND CONTROL DEVICE CODES.

** EXIT GAS PARTICULATE CONCENTRATION UNITS: PROCESS — GRAINS/DRY STANDARD FT3 (70°F); WOOD FIRED BOILERS — GRAINS/DRY STANDARD FT3 (70°F); ALL OTHER BOILERS — LBS/MILLION BTU HEAT INPUT.

*** EXIT GAS SULFUR DIOXIDE CONCENTRATIONS UNITS: PROCESS — PPM BY VOLUME, DRY BASES; BOILERS — LBS/MILLION BTU HEAT INPUT.

Model: 50REOZJC

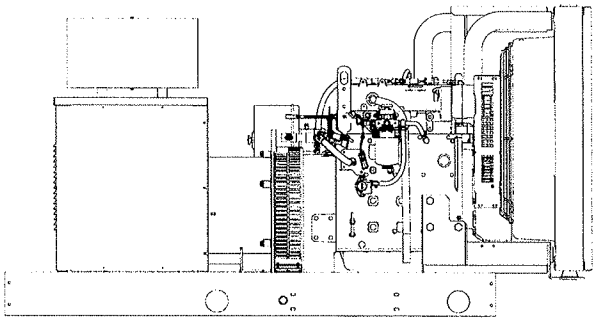
KOHLER POWER SYSTEMS

208-600 V | Diesel

ISO 9001 KOHLER POWER SYSTEMS NATIONALLY REGISTERED

Ratings Range

		60 Hz
Standby:	**kW**	37-50
	kVA	37-63
Prime:	**kW**	33-45
	kVA	33-56



Generator Set Ratings

				130°C Rise Standby Rating		105°C Rise Prime Rating	
Alternator	**Voltage**	**Ph**	**Hz**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**
4P7	120/208	3	60	47/59	163	43/54	149
	127/220	3	60	49/61	161	45/56	148
	120/240	3	60	47/59	141	43/54	129
	120/240	1	60	37/37	154	33/33	138
	139/240	3	60	50/63	150	45/56	135
	220/380	3	60	40/50	76	36/45	68
	277/480	3	60	50/63	75	45/56	68
	347/600	3	60	40/50	48	36/45	43
4P8	120/208	3	60	50/63	173	45/56	156
	127/220	3	60	50/63	164	45/56	148
	120/240	3	60	50/63	150	45/56	135
	120/240	1	60	47/47	196	43/43	179
	139/240	3	60	50/63	150	45/56	135
	220/380	3	60	50/63	95	45/56	85
	277/480	3	60	50/63	75	45/56	68
	347/600	3	60	50/63	60	45/56	54
4Q10	120/240	1	60	50/50	208	45/45	188

Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- The generator set complies with ISO 8528-5, Class G2, requirements for transient performance in all generator set configurations. Select the Decision-Maker® 550 controller for improved voltage regulation and ISO 8528-5, Class G3, compliance.
- The 60 Hz generator set engine is certified by the Environmental Protection Agency (EPA) to conform to Tier 3 nonroad emissions regulations.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Alternator features:
  - The unique Fast-Response™ II excitation system delivers excellent voltage response and short-circuit capability using a permanent magnet (PM)-excited alternator.
  - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
  - Controllers are available for all applications. See controller features inside.
  - The low coolant level shutdown prevents overheating (standard on radiator models only).
  - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. *Standby Ratings:* Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. *Prime Power Ratings:* Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory. Obtain the technical information bulletin (TIB-101) on ratings guidelines for the complete ratings definitions. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. GENERAL GUIDELINES FOR DERATION: *Altitude:* Derate 0.5% per 100 m (328 ft.) elevation above 2300 m (7546 ft.). *Temperature:* Derate 2.0% per 10°C (18°F) temperature above 25°C (77°F).

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
Leads: quantity, type	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	
Permanent magnet (PM) alternator	±2% Average
550 controller (with 0.5% drift due to temperature variation)	3-Phase Sensing, ±0.25%
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480 V 4P7 (12 lead)	194
480 V 4P8 (12 lead)	212
240 V 4Q10 (4 lead)	155

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Fast-Response™ II brushless alternator with brushless exciter for excellent load response.

Application Data

Engine

Engine Specifications	
Manufacturer	John Deere
Engine model	4024HF285B
Engine type	4-Cycle, Turbocharged
Cylinder arrangement	4 Inline
Displacement, L (cu. in.)	2.4 (149)
Bore and stroke, mm (in.)	86 x 105 (3.39 x 4.13)
Compression ratio	18.2:1
Piston speed, m/min. (ft./min.)	375 (1230)
Main bearings: quantity, type	5, Replaceable Insert
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	60 (80)
Cylinder head material	Cast Iron
Crankshaft material	Ductile Iron
Valve material:	
Intake	Chromium-Silicon Steel
Exhaust	Stainless Steel
Governor: type, make/model	JDEC Electronic, Level 18, EUP
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m^3/min. (cfm)	12.0 (423)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	574 (1066)
Maximum allowable back pressure, kPa (in. Hg)	7.5 (2.2)
Exhaust outlet size at engine hookup, mm (in.)	63.5 (2.5)

Engine Electrical

Engine Electrical System	
Battery charging alternator:	
Ground (negative/positive)	Negative
Volts (DC)	12
Ampere rating	70
Starter motor rated voltage (DC)	12
Battery, recommended cold cranking amps (CCA):	
Quantity, CCA rating	One, 640
Battery voltage (DC)	12

Fuel

Fuel System	
Fuel supply line, min. ID, mm (in.)	11.0 (0.44)
Fuel return line, min. ID, mm (in.)	6.0 (0.25)
Max. lift, engine-driven fuel pump, m (ft.)	3.0 (10.0)
Max. fuel flow, Lph (gph)	82 (21.7)
Fuel prime pump	Manual
Fuel filter	
Secondary	5 Microns @ 98% Efficiency
Water Separator	Yes
Recommended fuel	#2 Diesel

Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.)	7.3 (7.7)
Oil pan capacity with filter, L (qt.)	8.2 (8.7)
Oil filter: quantity, type	1, Cartridge
Oil cooler	Water-Cooled

Application Data

Cooling

Radiator System	
Ambient temperature, °C (°F)*	50 (122)
Engine jacket water capacity, L (gal.)	2.6 (0.7)
Radiator system capacity, including engine, L (gal.)	10.6 (2.8)
Engine jacket water flow, Lpm (gpm)	98 (26)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	35.7 (2030)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	10.9 (621)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	597 (23.5)
Fan, kWm (HP)	2.9 (3.9)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H_2O)	0.125 (0.5)

* Enclosure reduces ambient temperature capability by 5°C (9°F).

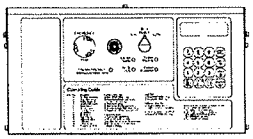
Operation Requirements

Air Requirements	
Radiator-cooled cooling air, m^3/min. (scfm)‡	96 (3400)
Combustion air, m^3/min. (cfm)	4.3 (152)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	14.0 (747)
Alternator, kW (Btu/min.)	7.6 (435)

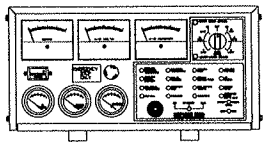
‡ Air density = 1.20 kg/m^3 (0.075 lbm/ft^3)

Fuel Consumption		
Diesel, Lph (gph) at % load	**Standby Rating**	
100%	16.2	(4.3)
75%	12.1	(3.2)
50%	8.5	(2.2)
25%	5.0	(1.3)
Diesel, Lph (gph) at % load	**Prime Rating**	
100%	13.7	(3.6)
75%	10.8	(2.9)
50%	7.6	(2.0)
25%	4.5	(1.2)

Controllers



Decision-Maker® 550 Controller
Audiovisual annunciation with NFPA 110 Level 1 capability.
Programmable microprocessor logic and digital display features.
Alternator safeguard circuit protection.
12- or 24-volt engine electrical system capability.
Remote start, remote annunciation, and remote communication options.
Refer to G6-46 for additional controller features and accessories.



Decision-Maker® 3+, 16-Light Controller
Audiovisual annunciation with NFPA 110 Level 1 capability.
Microprocessor logic, AC meters, and engine gauge features.
12- or 24-volt engine electrical system capability.
Remote start, prime power, and remote annunciation options.
Refer to G6-30 for additional controller features and accessories.

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-565-3381, Fax 920-459-1646
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
KohlerPower.com

Kohler Power Systems
Asia Pacific Headquarters
7 Jurong Pier Road
Singapore 619159
Phone (65) 6264-6422, Fax (65) 6264-6455

Additional Standard Features

- Alternator Protection (standard with 550 controller)
- Battery Rack and Cables
- Oil Drain and Coolant Drain w/Hose Barb
- Oil Drain Extension (with narrow skid and enclosure models only)
- Operation and Installation Literature
- Radiator Drain Extension (with enclosure only)

Available Options

Approvals and Listings

- ❑ CSA Approval
- ❑ IBC Seismic Certification
- ❑ UL2200 Listing

Enclosed Unit

- ❑ Sound Enclosure (with enclosed critical silencer)
- ❑ Weather Enclosure (with enclosed critical silencer)

Open Unit

- ❑ Exhaust Silencer, Critical (kit: PA-324470)
- ❑ Exhaust Silencer, Hospital (kit: GM32386-KP1)
- ❑ Flexible Exhaust Connector, Stainless Steel

Fuel System

- ❑ Auxiliary Fuel Pump
- ❑ Flexible Fuel Lines
- ❑ Fuel Pressure Gauge
- ❑ Subbase Fuel Tanks

Controller

- ❑ Common Failure Relay
- ❑ Communication Products and PC Software (550 controller only)
- ❑ Customer Connection
- ❑ Dry Contact (isolated alarm)
- ❑ Engine Prealarm Sender (16 light controller only)
- ❑ Prime Power Switch (550 controller only)
- ❑ Remote Annunciator Panel
- ❑ Remote Audiovisual Alarm Panel
- ❑ Remote Emergency Stop
- ❑ Remote Mounting Cable
- ❑ Run Relay

Cooling System

- ❑ Block Heater; Recommended for Ambient Temperatures Below 0°C (32°F)
- ❑ Radiator Duct Flange

Electrical System

- ❑ Alternator Strip Heater
- ❑ Battery
- ❑ Battery Charger, Equalize/Float Type
- ❑ Battery Heater
- ❑ Line Circuit Breaker (NEMA type 1 enclosure)
- ❑ Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)
- ❑ Safeguard Breaker (not available with 550 controller)

Paralleling System

- ❑ Reactive Droop Compensator
- ❑ Remote Speed Adjust Control/Electronic Governor
- ❑ Voltage Adjust Control
- ❑ Voltage Regulator Relocation

Miscellaneous

- ❑ Air Cleaner, Heavy Duty
- ❑ Air Cleaner Restriction Indicator
- ❑ Closed Crankcase Vent
- ❑ Engine Fluids (oil and coolant) Added
- ❑ Rated Power Factor Testing
- ❑ Rodent Guards
- ❑ Skid End Caps

Literature

- ❑ General Maintenance
- ❑ NFPA 110
- ❑ Overhaul
- ❑ Production

Warranty

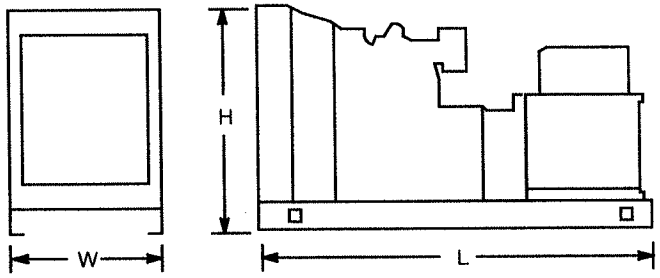
- ❑ 2-Year Basic
- ❑ 2-Year Prime
- ❑ 5-Year Basic
- ❑ 5-Year Comprehensive
- ❑ 10-Year Major Components

Other Options

- ❑ _____
- ❑ _____

Dimensions and Weights

Overall Size, L x W x H, mm (in.):
Wide Skid: 2300 x 1040 x 1133 (90.55 x 40.94 x 44.61)
Narrow Skid: 1998 x 780 x 1067 (78.66 x 30.71 x 42.01)
Weight (radiator model), wet, kg (lb.): 755 (1665)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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